CLAIMS

1. (Currently Amended) Audio apparatus comprising a piezoelectric transducer and a coupling adapted to couple the transducer to a user's pinna whereby the transducer excites vibration in the pinna to cause it to transmit an acoustic signal from the transducer to a user's inner ear, characterised in that the transducer is embedded in a casing of relatively soft material and the casing is mounted to a housing of relatively hard material such that a cavity is defined between the casing and housing, wherein the parameters of one or more of the cavity, casing and housing are selected to reduce unwanted radiation, to provide protection for the transducer and/or to ensure good sensitivity and bandwidth.

2. (Original) Audio apparatus according to claim 1, wherein the transducer is adapted be coupled to a rear face of a user's pinna adjacent to the user's concha.

3. (Previously presented) Audio apparatus according to claim 1, wherein the coupling between the casing and the housing is minimal to reduce transmission of vibration from the transducer to the housing, and wherein the housing is coupled to the casing at locations on the casing having reduced vibration.

4. (Original) Audio apparatus according to claim 3, wherein the locations contact regions of the transducer at which vibration is suppressed.

5. (Previously presented) Audio apparatus according to claim 3, wherein the locations are at opposed ends of the casing.

6. (Previously presented) Audio apparatus according to claim 1, wherein the cavity has a mechanical impedance (Z_{cavity}) which is lower than the output impedance of the transducer.

7. (Previously presented) Audio apparatus according to claim 1, wherein the cavity has a mechanical impedance lower than the impedance of the pinna (Z_{pinna}).

8. (Previously presented) Audio apparatus according to claim 1, wherein the coupling provides a contact pressure between the pinna and the apparatus so that the apparatus is coupled to the full mechanical impedance of the pinna.

9. (Previously presented) Audio apparatus according to claim 1, wherein the coupling is in the form of a hook, an upper end of which curves over an upper surface of the pinna.

10. (Original) Audio apparatus according to claim 9, wherein a lower end of the hook curves under the lower surface of the pinna.

11. (Previously presented) Audio apparatus according to claim 9, wherein the housing is mounted to the hook so that the transducer casing contacts a lower part of the pinna.

12. (Currently amended) A method of designing audio apparatus comprising mechanically coupling a piezoelectric transducer to a user's pinna and driving the transducer so that the transducer excites vibration in the pinna to cause it to transmit an acoustic signal from the transducer to a user's inner ear, characterised by embedding the transducer in a casing of relatively soft material and by mounting the casing to protective housing of relatively hard material such that a cavity is defined between the casing and housing and by selecting parameters of one or more of the cavity, casing and housing to reduce unwanted radiation, to provide protection for the transducer and/or to ensure good sensitivity and bandwidth.

13. (Canceled)

14. (Currently Amended) A method according to ~~claim 13~~ claim 12, wherein the coupling between the casing and housing and/or the cavity is selected to reduce unwanted radiation.

15. (Currently Amended) A method according to ~~claim 13~~ claim 12, wherein the mechanical impedance of the cavity is selected to be lower than the output impedance of the transducer.

16. (Original) A method according to claim 15, wherein the mechanical impedance of the cavity is selected to be lower than the impedance of the pinna.

17. (Previously presented) A method according to claim 12, comprising measuring the acoustic performance of the audio apparatus for each user and adjusting the location of the transducer on the pinna for each individual user to optimise acoustic performance.

18. (Original) A method according to claim 17, wherein the optimal position is measured by determining the angle between a horizontal axis extending through the entrance to the ear canal and a radial line which extends through the entrance and which corresponds to the central axis of the transducer.